

Application No. 10/038,223
Docket No. 17MY-7138
Amendment dated November 20, 2003
Reply to Office Action of August 20, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A precipitation-hardened stainless steel alloy consisting of, by weight:

14.0 to 16.0 percent chromium;
6.0 to 7.0 percent nickel;
1.25 to 1.75 percent copper;
0.5 to 1.0 percent molybdenum;
0.03 to 0.5 percent carbon;
niobium in an amount by weight of ten to twenty times greater than carbon;
not greater than 1.0 percent manganese;
not greater than 1.0 percent silicon;
not greater than 0.1 percent vanadium;
not greater than 0.1 percent tin;
not greater than 0.030 percent nitrogen;
not greater than 0.020 percent phosphorus;

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not greater than 0.025 percent aluminum;

not greater than 0.008 percent sulfur;

not greater than 0.005 percent silver;

not greater than 0.005 percent lead; and

the balance being essentially iron;

wherein the alloy has been tempered at a temperature of about 480°C to about 525°C to have an ultimate tensile strength of at least 1200 MPa and a Charpy impact toughness of at least 70 J. iron:

Claim 2 (currently amended): A precipitation-hardened stainless steel alloy according to claim 1, wherein the steel alloy has a Charpy impact toughness of at least 80 J. ~~at least 55 J.~~

Claim 3 (original): A precipitation-hardened stainless steel alloy according to claim 1, wherein the alloy contains niobium in an amount by weight of 10.0 to about 15 times greater than carbon.

Claim 4 (original): A precipitation-hardened stainless steel alloy according to claim 1, wherein the carbon content of the alloy is 0.03 to about 0.04 weight percent.

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Claim 5 (original): A precipitation-hardened stainless steel alloy according to claim 1, wherein the nitrogen content of the alloy is less than 0.020 weight percent.

Claim 6 (previously presented): A precipitation-hardened stainless steel alloy according to claim 1, wherein the grain size of the alloy is ASTM 5 or finer.

Claim 7 (Original): A precipitation-hardened stainless steel alloy according to claim 1, wherein the alloy is in the form of a steam turbine component.

Claim 8 (previously presented): A steam turbine component formed of a precipitation-hardened stainless steel alloy consisting of, by weight:

about 14.5 percent chromium;

about 6.5 percent nickel;

about 1.5 percent copper;

about 0.7 percent molybdenum;

0.03 to 0.4 percent carbon;

niobium in an amount by weight of 10.0 to about 15 times greater than carbon;

about 0.3 to about 0.8 percent manganese;

about 0.2 to about 0.5 percent silicon;

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not greater than 0.05 percent vanadium;

not greater than 0.01 percent tin;

not greater than 0.030 percent nitrogen;

not greater than 0.015 percent phosphorus;

not greater than 0.020 percent aluminum;

not greater than 0.0002 percent sulfur;

not greater than 0.0001 percent silver;

not greater than 0.0001 percent lead;

the balance being essentially iron;

wherein the alloy has a grain size of ASTM 7 or finer, a delta ferrite content of less than 0.5 weight percent, an ultimate tensile strength of at least 1275 MPa, a Charpy impact toughness of at least 80 J, and has been tempered at a temperature of about 480°C to about 500°C.

Claim 9 (previously presented): A steam turbine component according to claim 8, wherein the alloy has a Charpy impact toughness of 80 to about 110 J.

Claims 10-18 (canceled)

Claim 19 (previously presented): A precipitation-hardened stainless steel

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alloy according to claim 1, wherein the alloy has a delta ferrite content of less than 0.5 weight percent.

Claim 20 (currently amended): A precipitation-hardened stainless steel alloy according to claim 1, wherein the alloy has an ultimate tensile strength of at least 1275 MPa. ~~+200 MPa.~~